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Instruction Memorandum No. BC-2000-0013

To: All State Directors, Associate Director, FA-100
Attn: Support Services

From: Director, National Business Center

Subject: Selecting a Payment Method for Construction Equipment,
DD: 30 November 1999

The purpose of this Instruction Memorandum (IM) is to provide information for managers so they can decide how to pay for operating and replacing construction equipment used to support Bureau of Land Management (BLM) force account activities. Included is a summary of the current status of the program and an analysis of alternatives for paying for this equipment. Managers must choose which Automated Fleet Management System (AFMS) class their construction equipment will be placed in for FY 2000.

Background Information

The collection of Fixed Ownership Rate (FOR) for BLM's Working Capital Fund (WCF) construction equipment was suspended in March 1996 (see WO IB 96-91, dated March 11, 1996 and WO IM 96-133 dated June 18, 1996) to provide budget flexibility to the field offices during a period of fiscal uncertainty. Since that time, field offices have been asking if and when FOR on construction equipment will be reinstated because they have equipment that needs to be replaced. All states were queried regarding their position on reinstatement of FOR. The responses from most field offices and state level program leaders support the reinstatement of FOR to pay for replacement equipment. This IM will address the background and procedures for this action.

A survey of BLM construction equipment in FY1996 indicated there were many pieces of equipment that were not being used very much; this situation raised questions as to whether the state budgets should be paying to eventually replace this equipment when a more cost-effective

alternative may be available. In the interim, some states have purchased major items of replacement equipment, while others have made nonspecific contributions to the WCF toward the future purchase of replacement equipment. The WCF has continued to fund operations and maintenance costs of construction equipment through the collection of a use rate charge, which is collected on reported utilization of the equipment. Two disadvantages of the present situation are that: (1) when the use of the equipment is charged against a project, the capitalized cost of the equipment is not usually calculated so it cannot be allocated to the project and the true cost of the project is less accurate; and (2) as the equipment gets older, it becomes less efficient and more costly to operate, driving up the use rate charge for all participants.

In FY1998, WCF classes were established for construction equipment used to support fire operations. While workable, this system sometimes made the equipment too expensive to operate for normal maintenance activities during fire season, during the five months when FOR was being collected.

A survey of the past two years of BLM construction equipment activity, revealed the following:

- Much equipment continues to be highly utilized.

- The reported utilization on some equipment has decreased.

- Most field offices were not aware that the funding of their programs generally continued at the same rate as in previous years, although the funds that had formally been committed to paying FOR were not available for replacement of equipment because the funds were committed to other priorities.

- Several pieces of equipment that should have been replaced were instead repaired at considerable expense. These extensive repairs resulted in higher costs in the use rate charge paid by all offices, unless a procedure was developed to charge large repairs directly to a benefitting activity.

- Equipment that is underutilized or has been replaced is not reported as available or transferred to other offices. It is retained by the local office instead of being sold to realize revenue that could be used for purchasing replacement equipment, or being transferred to or shared with another office so that it could get better utilization.

<u>The 1997 Oregon Pilot Study</u>

To address all of these issues, a pilot study on the cost-effective management of BLM construction equipment was initiated in Oregon in July 1997. A report on the pilot study issued in September 1998, presented several findings.

- Uncertainty of future replacement made field offices hesitant to share equipment, which encouraged underutilization.

- A state wide equipment committee should be formed to decide how to prioritize

equipment replacement, monitor maintenance and utilization, and to encourage equipment sharing through coordinating and scheduling projects.

- Up-to-date utilization and financial information should be available for managers to use when tracking equipment costs.

- Funds are needed to replace worn-out or inefficient equipment and ensure safe and cost-effective operations.

- Payment of FOR to the WCF is an efficient means of providing construction equipment for force account operations when compared to other alternatives.

These findings support the recommendation that the FOR be reinstated for construction equipment in situations where the equipment can be efficiently used and the force account program will continue in operation.

Reinstating the FOR: Important Cost Considerations

There are several points to consider regarding how WCF funds for replacing equipment that should be addressed before the FOR is reinstated.

If an investment of $75,000 to $175,000 is made for an individual piece of equipment, there must be assurance that this is a cost-effective investment that supports BLM objectives. The utilization of equipment must be evaluated annually. The force account activity should be staffed, planned, and executed so that equipment is used efficiently. If equipment is not being used efficiently, it should be transferred to another office where it will get more use. The equipment may also be sold and the proceeds used to replace equipment being used effectively but is in need of replacement.

From the 1997 Oregon study, the annual cost of ownership can be compared to leasing equipment. Leasing equipment requires a payment for the period of the lease as well as payment of the costs for operating the equipment. The total annual cost consists of two components: fixed ownership or capitalization costs, and variable or operating costs. The capitalization costs depend on the replacement life cycle of the equipment, which depends on the annual amount of utilization. The operating costs vary with the amount of use. When these costs are compared to local equipment lease rates, the cost of leasing a single item of equipment for two months compares to the BLM annual cost of ownership. One hundred percent utilization of equipment for two months would be about 320 hours on a time clock. In reality, vendors who lease equipment consider full use to be about 120 equipment meter hours per month because of the time the equipment is not used due to waiting time, engine load variations, maintenance time, transport time, and weather delays. Two months of utilization would then be about 240 hours. Field offices can justify annual ownership costs of equipment if the equipment can be used an average of 240 hours per year.

Life cycle costs can be adjusted in two directions. We can keep the equipment longer and lower the fixed annual cost, but then the operating cost is higher because of expensive engine,

transmission, and undercarriage rebuilds. The advantage of this method is that fixed costs are low and lower fixed costs are allocated per hour of operating time. Well-maintained equipment will have lower operating costs and, as a result of lower fixed costs, lower overall ownership costs. The disadvantage is that equipment is not available during maintenance downtime. If the equipment is poorly maintained, it will become unreliable and inefficient to operate, because of unplanned downtime for repairs.

Alternatively, we can keep the replacement cycle shorter as we do with light trucks and thereby have high availability and avoid expensive repairs. The advantage is that we keep the operating cost down because we are avoiding most of the expensive rebuilds and repairs. The disadvantage is that we are paying a higher FOR because the ownership cost is spread over fewer years. However, the residual value at resale is relatively high because of low hours and the fact that the equipment is not very old. The age of the equipment has less impact on the residual value than the hours or miles of use.

In most cases, the annual lease cost (FOR) is higher than the annual operating cost. Therefore, adjusting the annual lease cost has the greater impact on the total annual cost of having the equipment. Ideally, the annual operating cost paid should be higher than the lease cost since the costs charged to a project should reflect work getting done rather than equipment being present on the site.

With BLM annual utilization averages of 200 to 500 hours, some of our equipment could be with us for many years. Realistically, however, 20 years is a more practical limit because of problems with parts availability, equipment operational availability, resale value, operator training, dealer support, and safe operation of the equipment. In the past, the life cycle of most BLM equipment has been 15 years, with some Oregon equipment with high utilization on a 12-year cycle. These numbers have represented a compromise; we have avoided many high-cost repairs, while the cost of ownership has been comparable to the cost of leasing equipment for the amount of annual utilization BLM equipment typically accumulates. However, much of the equipment that was replaced had not been well utilized during its service and had relatively low hours for the age of the machine.

If one of our objectives is to keep operating costs low, then we should retain equipment no more than half of its economic life because we can avoid many expensive repairs, maintain current operator skill levels, and get reasonable resale value on the equipment.

The average life for construction equipment is between 6,000 and 16,000 hours before it becomes uneconomical to repair, i.e., the repairs cost more than the market value of the equipment. If these hours are averaged over the annual utilization, we can calculate the average life cycle. Some construction industry examples of economic life are in the following Table One.

TABLE ONE

Comparison of Economic Life of Construction Equipment

Equipment	Industry Wide Economic Life	BLM Life Cycle Hours/Years/Monthly Use	
	Hours/Miles	High Use	Medium Use
Skid steer loader	6000 hrs	3000/8/30	3000/12/20
Agricultural tractor	8000 hrs	4000/10/30	4000/15/20
Tractor loader backhoe	8000 hrs	4000/10/30	4000/15/20
Forklift, rough terrain	8300 hrs	4150/10/32	4150/15/32
Low bed equipment trailer	8800 hrs/ 300,000 miles	150,000/12/ 850	150/000/18 550
Excavator, tracked	9200 hrs	4600/12/30	4600/18/20
Truck, tractor, 6x4	9300 hrs/ 300,000 miles	150,000/12/ 1000	150/000/18/ 700
Dump truck, 6x4	9800 hrs/ 300,000 miles	150,000/12/ 1000	150,000/18/ 700
Trailer, dump	10,000 hrs/ 300,000 miles	150,000/15/ 800	150,000/20/ 600
Articulated loader	11,000 hrs	5,500/15/30	5,500/20/20
Forklift, industrial	11,200 hrs	5,600/16/30	5,600/20/20
Crawler bulldozer	12,120 hrs	6,060/15/30	6,060/20/20
Motor grader, articulated	15,850 hrs	7,925/15/45	7,925/20/30

Currently, these categories of equipment are represented by separate WCF classes.

The reinstatement of FOR would divide equipment into three groups or alternatives for funding equipment operation. The first group would be for equipment in the high use category. This equipment would be covered by the 0700 series classes.

The second alternative group would be the remainder of equipment that would have a 15- to 20-year replacement cycle. This would be covered by the 0400 and 0800 series classes.

Equipment in these first two groups would not be replaced until the utilization was predicted to be in the life cycle target range. It would not be replaced according to age unless it had reached a maximum life cycle of 20 years. The lease rate or FOR would be calculated on the average age at the target life cycle when the equipment is replaced. Initially, the life cycle in years stated above in Table One would be used to calculate the lease rate. Equipment could be replaced if excessive repairs were creating an availability problem.

The third alternative group would be low utilization equipment that would pay a use rate that would cover fuel costs; while all services and repair costs would be paid by the benefitting activity. Equipment is this class may be purchased new using appropriated funds, acquired from

excess equipment lists, or purchased from WCF as equipment is replaced. Much of this equipment is currently in a special purpose class. This equipment is typically used for a short-term special project, is used sporadically, or is not intended to be replaced by WCF funds. Utilization would be less than 200 hours or 5000 miles per year. This equipment would be covered by the 300 series classes. Table Two lists descriptions of this equipment.

TABLE TWO

CLASS	DESCRIPTION
0330	Forklift, IC Engine, Industrial
0333	Forklift, IC Engine, Rough Terrain
0334	Forklift, Electric, no use rate
0315	Bulldozer, less than 120 HP
0316	Bulldozer, greater than 120 HP
0344	Tractor/Loader/Backhoe
0346	Loader, greater than 1.25 CY Bucket
0323	Tractor, Agricultural, less than 60 HP
0327	Tractor, Agricultural, 60 HP or more
0395	MV-Truck, 6 x 4, DED, greater than 34,000 GVW
0396	Road Grader, any size
0399	Heavy Equipment, for reporting purposes only, no use rate

All equipment in the first two categories would have an annual total repairs limit determined by the age of the equipment. If the amount of the repairs exceeded the residual value of the equipment, the repair would not be recommended and the field office would have to pay for any repairs in excess of the authorized amount from benefitting activity funds.

A state might want to pay the FOR on a piece of equipment even though it is not meeting the utilization criteria because a management decision has been made that: (1) the equipment supports an ongoing critical operation and must be replaced at some future date with WCF funds (example: equipment at remote sites or unique equipment unavailable from other sources), and (2) the payment of FOR is the most cost-effective method of ensuring that the equipment is available to support force account operations. In these situations, the equipment should be in a 0800 class rather than a 0300 class.

A state may also choose to keep equipment with high utilization in a special purpose class and not pay the FOR in order to retain maximum flexibility in budget allocations.

Financial reports are being programmed to track all WCF income and expenditures by vehicle class for construction equipment. This will allow managers to know what funds are available to purchase replacement equipment.

<u>Actions Required</u>

It is strongly recommended that all states form equipment committees with a charter to monitor

equipment utilization, prioritize replacement of equipment, and select the replacement category of equipment. Current WCF equipment less than 10 years old that is underutilized should be subject to a plan to increase its usage. Only equipment that is and has been in a replacement class (0400, 0700, or 0800 series) can be replaced using WCF funds. Equipment that is not immediately placed into a replacement class this FY, may be placed into a replacement class for FY2001 if the equipment is inspected for deficiencies and all repairs completed and paid for by the benefitting activity.

IM BC2000-001 lists the FOR and use rates that will be in effect for FY2000. The BLM Fleet Manager will consider adjustments in life cycles and utilization standards based on input from field managers.

Field office managers should review their construction equipment and decide which class the equipment should be assigned to. There are several items of equipment currently in the 0800 series that have very high utilization. This equipment should be placed into an appropriate 0700 series AFMS class. This class would have a shorter life cycle and a correspondingly higher FOR.

All states should indicate whether the equipment should be in the replacement category as currently assigned or placed into a special purpose class. Questions or comments regarding life cycles or utilization requirements should be forwarded to Tom Jatko.

If you have any questions, please contact Tom Jatko, BLM Fleet Manager (BC680A) at 303-236-9456, or Michael Kluherz, WCF Manager (BC610) at 303-236-6325.

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